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Short Communication

Trichuriasis diagnosed by colonoscopy: case report and review of the literature spanning 22 years in mainland China

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SUMMARY

Trichuriasis is soil-source parasitic disease, usually endemic in warm, humid, tropical and subtropical countries. We report a case of trichuriasis diagnosed by colonoscopy performed in a non-endemic area and review the literature on the colonoscopic diagnosis of *Trichuris trichiura* spanning 22 years (1989–2011) in mainland China. A total of 4382 trichuriasis cases were diagnosed by colonoscopy out of 41 337 patients who underwent colonoscopy. Most of the patients were cured by unloading the whipworms using colonoscopy pincers. We strongly suggest colonoscopy as a useful diagnostic and treatment tool, especially when the patient is lightly infected or is infected by only a few male worms with no eggs in the stool. The geographical distribution, parasite burden, and the parasitizing locations of *T. trichiura* in the intestine of the human body were analyzed, and the clinical signs and symptoms, as well as the utility of colonoscopy in the diagnosis and treatment of trichuriasis are discussed.

1. Introduction

Trichuriasis is usually endemic in warm, humid, tropical and subtropical areas and countries.[1] We report an unusual case of trichuriasis, diagnosed accidentally by colonoscopy in the city of Shenyang, a non-endemic area for this disease. A literature overview of the colonoscopic diagnosis of trichuriasis spanning 22 years in mainland China is also reported.

2. Case report

A 48-year-old Korean man, who had come to Shenyang looking for a job, was found to have an elevated colon cancer marker during a health examination in May 2010. He was then referred for colonoscopy to the endoscopy center of our hospital. He had no medical complaints and a physical examination was unremarkable. Blood chemistry and cell count, and a stool examination were normal. Repeated stool examinations revealed no ova or parasites. However, a colonoscopic examination demonstrated the presence of more than 10 living parasites on the mucosa of the cecum, colon, and rectum (Figure 1). The worms were threaded and fixed to the mucosa at their anterior end. The caudomedial part was about 15 mm in length and 0.8 mm in diameter, with a coiled or suspended appearance. One of the worms was grasped with biopsy forceps and gently removed endoscopically from the mucosa of the lower colon. At first, intestinal Anisakis was diagnosed because the size, shape, and color of the worm were exactly like Anisakis, and also because the patient had a history of eating raw fish. However, the final diagnosis was a *Trichuris trichiura* infection on the basis of the typical eggs of *T. trichiura* revealed in a worm section by microscopic examination.

3. Literature review

A retrospective study was conducted by searching relevant articles available from the authority database of mainland China spanning 22 years (1989–2011). Trichuriasis case reports in China were collected using keywords by multiple independent investigators. The reported cases and articles were identified and filtered either by literature review or case discussions. Repeated cases were excluded.

A total 4382 trichuriasis cases were diagnosed by colonoscopy in 41 337 patients who underwent colonoscopy, with an average detection rate of 10.6%. These cases were identified in 23 reports

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Figure 1. Colonoscopy showed a squirming, whitish, thin form with a whitish silk tip in the colon.

from 11 provinces (Table 1 and Figure 2). The highest detection rate was 69.0% from Fuzhou City of Fujian Province (Wu et al., 1993). The lowest was 0.5% from Kunming City of Yunnan Province (Chen et al., 2003) and Xiaogan City of Hubei Province (Yin et al., 2006). The stool samples of 2230 colonoscopy-positive patients were examined by microscopy. The average detection rate of eggs by microscopy was 2.69% (61/2264). The parasite burden ranged from 1 to 10 in 93.6% of cases; 82.8% of them were cured by unloading the whipworms using colonoscopy pincers. For those patients with serious infections that could not be cured by the unloading of whipworms alone, whipworms were removed using colonoscopy pincers and the patients given further treatment with albendazole or other anthelmintics.

4. Discussion

Trichuris trichiura is a common human parasite with a worldwide distribution, especially in rural areas of developing tropical and subtropical countries. In China, a national survey examining 356 629 persons randomly in 31 provinces revealed that the prevalence of *T. trichiura* infection ranged from 0.01% to 31.35%, with a national average prevalence of 4.63% in 2004. The patients were mainly found in the nine provinces of the south of China, but some sporadic cases occasionally occur in non-endemic areas, mainly as a result of immigration.[2,3] A similar geographical distribution pattern was observed in this retrospective study, although the geographical distribution may be limited by selection and publication bias.

The diagnosis of trichuriasis is usually based on the identification of *T. trichiura* ova in stool specimens. However, several reports have described the detection of *T. trichiura* using colonoscopy.[4–9] There have been many reports on the detection of the whipworm by endoscopy in China, published in Chinese (see Table 1). Our review showed that the parasite burden in 93.6% of patients ranged from 1 to 10 whipworms, indicating that most of the patients were suffering from a light infestation. In this epidemiological state, 10.6% of cases were diagnosed by colonoscopy among those who underwent colonoscopy, and of the colonoscopy-positive individuals only 2.69% were positive for eggs on microscopy. We strongly suggest colonoscopy as a useful diagnostic tool, especially in those who are lightly infected or who have only a few male worms with no eggs in the stool. In addition, attention should be paid with regard to the differential diagnosis of anisakiasis.

T. trichiura is difficult to discharge from the intestine with anthelmintic agents because the worms are threaded and fixed within the mucosa at their anterior end. Our data show that 82.8% of patients were cured by unloading the whipworms using colonoscopy pincers. The results indicate that colonoscopy is not only useful for the diagnosis of trichuriasis, but also for curing patients by removing the worms with the colonoscopy pincers.

Table 1
The detection of trichuriasis by colonoscopy and the egg by microscopy

Ref. [a]	Examined colonoscopy			Feces microscopy		
	No.	No. positive	Positive rate (%)	No.	No. positive	Positive rate (%)
Cheng, 1999	350	17	4.9	17	0	0.00
Zheng, 2000	805	16	2.0	16	6	37.50
Zhang, 2006	1024	86	8.4	86	6	6.97
Chen et al., 2003	5700	30	0.5	6	0	0.00
Diao, 2011	383	15	3.9	–	–	–
Li et al., 1989	2311	302	13.1	–	–	–
Tan, 1996	2833	175	6.2	–	–	–
Chen, 2001	998	18	1.8	–	–	–
Liao, 2000	787	14	1. 8	8	3	37.50
Ling, 1997	847	83	9.8	–	–	–
Wu et al., 1993	3820	2636	69.0	1860	0	0.00
Liu et al., 2002	1352	21	1.6	–	–	–
Zheng, 1994	4530	105	2.3	–	–	–
Li et al., 1995	602	58	9.6	58	5	8.62
Zhou et al., 1990	2070	130	6.3	–	–	–
Xiao, 1995	398	52	13.1	–	–	–
Wang et al., 1995	3644	367	10.1	–	–	–
Liu et al., 2000	2189	117	5.3	117	0	0.00
Yin et al., 2006	4200	22	0.5	8	0	0.00
Cheng, 2006	1568	21	1.3	–	–	–
Chao, 1999	520	54	10.4	54	32	59.25
Gong, 1999	1	1	–	–	–	–
Zhang, 1999	406	42	10.3	34	9	26.47
Total	41 337	4382	10.6	2264	61	2.69

[a] All of the reference details are available from the corresponding author upon request.
–: no data.

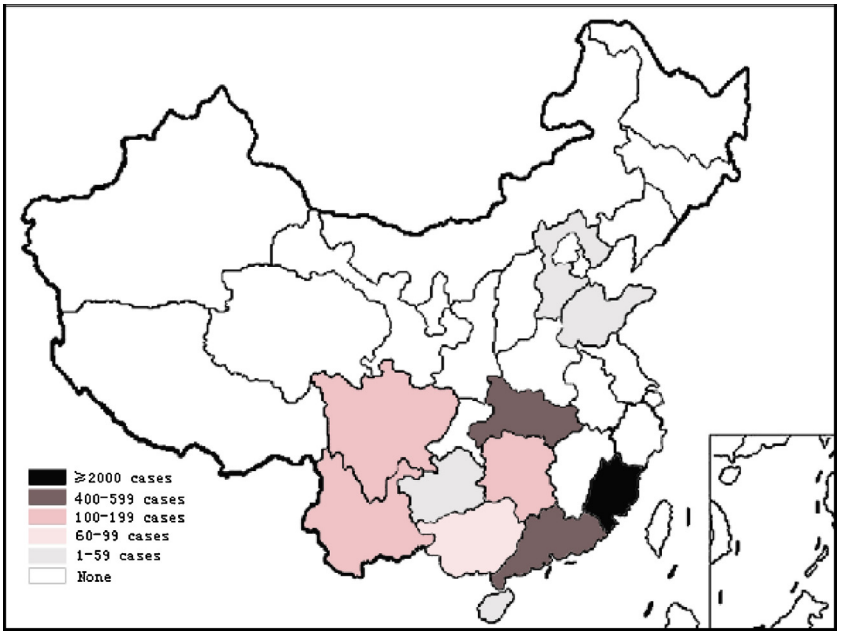

Figure 2. Different geographical prevalence of trichuriasis in mainland China. A total 4382 cases diagnosed by colonoscopy were recorded in 23 reports from 11 provinces of mainland China, as follow: Fujian 2636, Hubei 527, Guangdong 495, Hunan 182, Sichuan 163, Yunnan 131, Guangxi 97, Shandong 55, Hebei 42, Hainan 33, and Guizhou 21.

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Conflict of interest: No conflict of interest to declare.

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